Computational Semantics

Assignment 3: Grammar Engineering

1. Difficulties in text

First, because of the doubled Sem variable, the semantic representation of the verb phrase (that is, SemVP) becomes the semantic representation associated with the sentence. Secondly, because X is unified with SemPN, the semantics of the proper name (a first- order constant) is substituted into the verb phrase representation.

I found this hard, because I had difficulty understanding the text preceding this fragment, but by much thinking (and ignoring some of the terminology) I could make some sense out of it. Now they seem to combine many things all at once and it all becomes a bit unclear to me. Maybe too much 'new' information all at once, because prolog and its syntax are also still quite new to me and lack of a grammatical background also does not help.

Are there clouds on the horizon? For example, while the semantic representation of a quantifying noun phrase such as a woman can be used as a functor, surely the semantic representation of an NP like Vincent will have to be used as an argument?

The preceding text to this fragment was, just like mentioned above, becoming more clear by thinking a lot about it and making simple examples based on the formulas in text. But after reading this several times it still did not become clear. In some kind of way I don't get how suddenly 'functors' and 'arguments' are introduced again and what they have to do with the lamba calculus.

Task 3 Specify the semantic representation R′ of a syntactic item R whose parts are F and A with the help of functional application. That is, specify which of the subparts is to be thought of as functor (here it's F), which as argument (here it's A) and then define R′ to be F′@A′, where F′ is the semantic representation of F and A′ is the semantic representation of A.

We must now show that the second and third tasks lend themselves naturally to computational implementation.

There are too many unknown variables (if that is the right terminology?) (e.g. R', R, F, A, F' etc.) named in one sentence. It is unclear to me what is supposed to be done for this task 3 and so I also do not understand how such a thing could naturally lend itself to a computational implementation.

2. Group work: DCG

Part of verb group, see DCG.pdf

3. CCG Analysis

See CCG.pdf

4. Error messages

animals-65588_640.mod: not well-formed extension [d3,d4,d5,d6,d7,d8,d9,d10] of arity 1

D4 up until d10 are not defined in the domain for this model.

apple-19309_640.mod: not well-formed extension [d6] of arity 1

D6 is not defined in the domain for this model.

apple-19309_640.mod: not well-formed extension [d7] of arity 1

D7 is not defined in the domain for this model.

baby-114627_640.mod: not well-formed extension [d4] of arity 1
D4 is not defined in the domain for this model.

bald-eagle-184229_640.mod: not well-formed function f(1,a_white_1,[n4])
The interpretation function for a_white_1 has already been defined for n2, so n4 could be included in that function.

boat-405759_640.mod: not well-formed function f(1,a_green_1,[d4])
The interpretation function for a_green_1 has already been defined for d1, so d4 could be included in that function.

cat-1709_640.mod: not well-formed function f(1,a_green_1,[d3,d4])
The interpretation function for a_green_1 has already been defined for d1, so d3 and d4 could be included in that function.

dachshund-361560_640.mod: not well-formed function 1,n_collar_6,[d4]
The f for interpretation function is forgotten for what must have the interpretation function for n_collar_6.

dachshund-361560_640.mod: not well-formed extension [d6] of arity 1
D6 is not defined in the domain for this model.

dachshund-361560_640.mod: not well-formed extension [d6] of arity 1
D6 is not defined in the domain for this model.

little-boy-251365_640.mod: not well-formed extension [d9] of arity 1
D9 is not defined in the domain for this model.

little-boy-251365_640.mod: not well-formed extension [d10,d11] of arity 1
D10 and d11 are not defined in the domain for this model.

little-boy-251365_640.mod: not well-formed extension [d12] of arity 1
D12 is not defined in the domain for this model.

little-boy-251365_640.mod: not well-formed extension [d9] of arity 1
D9 is not defined in the domain for this model.

man-220386_640.mod: not well-formed extension [s2] of arity 1
S2 is not defined in the domain for this model.